

ALO--WWID-WIPP-1999-0005

Final Report

## Occurrence Report

Waste Isolation Pilot Plant

(Name of Facility)

Nuclear Waste Operations/Disposal

(Facility Function)

Carlsbad Area Office

Westinghouse Waste Isolation Div.

(Laboratory, Site, or Organization)

**Name:** xxxxxxxxxxxx**Title:** SURFACE OPERATIONS MANAGEMENT ASST.**Telephone No.:** (505)xxxxxxxx

(Facility Manager/Designee)

**Name:** xxxxxxxxxxxx**Title:** SURFACE OPERATIONS MANAGEMENT ASST.**Telephone No.:** (505) xxxxxxxx

(Originator/Transmitter)

**Name:****Date:**

(Authorized Classifier (AC))

**1. Occurrence Report Number:** ALO--WWID-WIPP-1999-0005

CONTINUOUS AIR MONITOR ALARM

**2. Report Type and Date:** Final

	Date	Time
<b>Notification:</b>	08/26/1999	15:46 (MTZ)
<b>Initial Update:</b>	09/24/1999	11:21 (MTZ)
<b>Latest Update:</b>	09/24/1999	11:21 (MTZ)
<b>Final:</b>	10/19/1999	08:08 (MTZ)

**3. Occurrence Category:** Off-Normal**4. Number of Occurrences:** 1**Original OR:**

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**5. Division or Project:** WIPP**6. Secretarial Office:** EM - Environmental Management**7. System, Bldg., or Equipment:** CONTINUOUS AIR MONITOR (CAM)**8. UCNI?:** No**9. Plant Area:** WASTE HANDLING BUILD**10. Date and Time Discovered:** 07/26/1999 09:20 (MTZ)**11. Date and Time Categorized:** 08/26/1999 12:30 (MTZ)**12. DOE Notification:****13. Other Notifications:**

Date	Time	Person Notified	Organization
07/26/1999	09:30 (MTZ)	FACILITY REPRESENTATIVE	DOE/CAO

**14. Subject or Title of Occurrence:**

CONTINUOUS AIR MONITOR ALARM

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**15. Nature of Occurrence:**

- 10) Cross-Category Items
- C. Potential Concerns/Issues

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**16. Description of Occurrence:**

At approximately 0920 on July 26, 1999, a portable alpha Continuous Air Monitor (CAM) alarmed while a TRUPACT was being opened for unloading in the Waste Handling Building. The probe of the CAM was inside the TRUPACT vent hood. The CAM alarm cleared at 0940, and then energized and cleared two more times within the next 30 minutes.

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**17. Operating Conditions of Facility at Time of Occurrence:**

Waste handling mode was established in the Waste Handling Building.

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**18. Activity Category:**

## 03 - Normal Operations

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### 19. Immediate Actions Taken and Results:

When the initial alarm sounded, personnel placed equipment in a safe condition and evacuated the Contact Handling bay of the Waste Handling Building according to procedure. After entering airlock 106, the seven involved personnel performed self-monitoring. No contamination was detected on any of the personnel. Subsequent nasal smears were taken and no activity was detected. Preparations for reentry and evaluation began.

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### 20. Direct Cause:

- 1) Equipment/Material Problem
  - E. Electrical or Instrument Noise

### 21. Contributing Cause(s):

- 2) Procedure Problem
  - A. Defective or Inadequate Procedure

### 22. Root Cause:

- 4) Design Problem
    - B. Inadequate or Defective Design
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### 23. Description of Cause:

The most probable direct cause of the observed change in the alarm setpoint of the CAM was a surge in the electrical supply power, radio-frequency energy intruding into the instrument chassis, static discharge, or similar electrical upset. The handling area of the Waste Handling Building is an environment rich in localized power spikes and radio frequency energy.

Consultation with the manufacturer (Eberline) indicates that CAM sensitivity to electrical upset is a known problem for which there is no simple solution. The involved CAM is a 1985 vintage machine. The root cause of this event is a design of this unit which is apparently inadequate to isolate electrical noise and prevent false alarms.

The alarm setpoint was checked approximately two hours prior to the event and found to have been properly set at 12 cpm. Had the procedure required a check of the alarm setpoint immediately prior to placing the probe inside the vent hood, a change in setpoint within the past two hours would have been noted. The procedure is considered inadequate because it does not specify this check of the instrument immediately prior to use.

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## 24. Evaluation (by Facility Manager/Designee):

Based on the results of the preliminary investigation, this event was determined to reportable since it has revealed technical information which may be of value to other facilities using the Eberline Alpha-6A-1 portable alpha CAM.

Examination upon reentry showed the alarm setpoint on the CAM to be set at "Zero" cpm. The alarm had been specifically set at 12 cpm about two hours before this event. The Eberline company has informed us the observed change in setpoint is not unusual, and may occur as a result of a fluctuation in the power supplied to the unit. They further indicated the unit may reset as a consequence of electronic "noise" generated by other equipment in the vicinity. Our investigation is continuing.

When the initial CAM alarm was received, personnel evacuated the area according to procedures. Reentry, evaluation, and confirmatory radiological surveys resulted in several hours of time lost from the waste handling process. All monitoring and survey results were negative. This lost time had no appreciable impact on the WIPP waste handling schedule, and no impact whatever on the waste shipment schedules for waste generator sites.

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## 25. Is Further Evaluation Required?: No

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## 26. Corrective Actions

(\* = Date added/revised since final report was approved.)

1. 

Change the waste handling procedure to require a check of the alarm setpoint of a portable alpha CAM immediately prior to placing its probe under the vent hood. Review this change with all Radiological Controls personnel	
<b>Target Completion Date:</b> 10/01/1999	<b>Completion Date:</b> 09/09/1999
  
  2. 

Install in-line power conditioners on the portable CAM units.	
<b>*Target Completion Date:</b> 03/01/2000	<b>Completion Date:</b>
  
  3. 

Evaluate the current CAM alarm response philosophy to determine if it is appropriate to respond differently to an alarm on a CAM monitoring general area conditions and an alarm on a CAM monitoring a specific enclosed area such as the interior of a TRUPAC enclosed by a vent hood. Issue any procedure changes which may result from this evaluation.	
<b>Target Completion Date:</b> 11/30/1999	<b>*Completion Date:</b> 12/06/1999
  
  4. 

Install remote monitoring capability on the portable CAMs used on the waste handling docks.	
<b>*Target Completion Date:</b> 05/01/2000	<b>Completion Date:</b>
  
  5. 

Specify and initiate procurement actions to replace the current 1985 CAMs with new commercially available units.	
<b>Target Completion Date:</b> 12/31/1999	<b>*Completion Date:</b> 01/13/2000
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**27. Impact on Environment, Safety and Health:**

None

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**28. Programmatic Impact:**

None

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**29. Impact on Codes and Standards:**

None

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**30. Lessons Learned:**

The addition of remote monitoring capability for the existing portable CAMs can significantly reduce the time required to recover from such an event. Initial response should remain conservative, but followup recovery actions could be expedited if radiological conditions could be determined from a remote location. While the current waste receipt and handling schedule accomodates the very deliberate and protracted recovery from an alarm, planned production rate increases make it important to reduce the time lost to spurious and false CAM alarms. That time lost to such alarms can be significantly reduced if the readings and alarm status of these CAMs could be monitored from an area outside the Waste Handling Building.

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**31. Similar Occurrence Report Numbers:**

1. None
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**32. User-defined Field #1:****33. User-defined Field #2:****34. DOE Facility Representative Input:**

Overall, the contractor's response to the reporting requirements and corrective actions--those taken and those identified for implementation--are reasonable and timely. With the planned addition of remote monitoring capability for existing portable CAMs, the time required to recover from such events can be reduced. The FR agrees that initial responses to CAM alarms should remain conservative, that assessments and recovery actions should be expedited when radiological conditions are determined from a remote location. With increasing waste handling production rates planned, time lost to false CAM alarms can be reduced when CAM readings and alarm status are monitored from an area outside the Waste Handling Building.

Entered by: xxxxxxxxxxxx

Date: 10/19/1999

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**35. DOE Program Manager Input:**

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**36. Approvals:**

**Approved by:** xxxxxxxx, Facility Manager/Designee

**Date:** 09/24/1999

**Telephone No.:** (505) xxxxxxxx

**Approved by:** xxxxxxxx, Facility Representative/Designee

**Date:** 10/19/1999

**Telephone No.:** (505) xxxxxxxx

**Approved by:** Approval delegated to FR

**Date:** 10/19/1999

**Telephone No.:**

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